BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

RIVER PINES WATER SYSTEMS, INC. PROPOSED INCREASES IN WATER AND SEWER RATES	)))	DOCKET NO. 98-362-W/S

TESTIMONY OF

MICHAEL A. BLEIWEIS

ON BEHALF OF

THE CONSUMER ADVOCATE

DECEMBER 1998

RETURN DATE: OK MR

SERVICE: OK MR

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I. STATEMENT OF QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Michael A. Bleiweis and my business address is 733 Summer Street, Stamford, Connecticut.

Q. By whom are you employed?

A. I am employed by The Woodside Group, Inc., a financial and management consulting firm.

Q. What position do you hold with The Woodside Group and in what endeavor do you specialize?

A. I am a principal specializing in public utility rate cases. Over the course of my career, my services have been utilized by various consumer advocate and public interest groups, as well as by public utilities.

Q. For whom are you testifying in this proceeding?

A. I am testifying on behalf of the Consumer Advocate.

Q. What is your educational background?

A. I am a graduate of Syracuse University with a Bachelor of Arts degree in Political Science and of New York University Graduate School of Business Administration with a Masters of Business Administration degree in Securities Analysis and Financial Analysis.

Q. What has been your business experience?

A. In 1973, I was employed as an economic research consultant with the firm of National Economic Research Associates (NERA) where I was involved in the preparation of rate of return exhibits that were based upon computer modeling for various utility companies.

In 1974, I joined the firm of Citizens Utilities Company as a Revenue Requirements Analyst. My duties included the preparation of financial exhibits and testimony for various water, sewer, electric and gas company rate cases.

In 1977, I joined American Water Works Service Company as Director of Rates and Revenue of the Eastern and New England Divisions of American Water Works Company, Inc. I was charged with the responsibility of preparing financial exhibits, supporting data and testimony for use in rate hearings for a total of thirteen water companies in New England, New York and New Jersey.

I have been employed at The Woodside Group since 1979.

Q. Please describe further your experience in regulatory matters.

A. Attached as Appendix A, is a listing of the proceedings in which I have testified or participated concerning the proper determination of revenue requirements and other rate-related topics.

II. SUMMARY OF CONCERNS

Q. Mr. Bleiweis, will you please summarize your major concerns as presented in the following testimony.

A. For this proceeding, the company is requesting a 52.4% increase in water rates and a 17.5% increase in sewer rates. However, after adjusting the test year income statement for non-recurring expenditures and the rate base for plant no longer to be in service, the requested rates and associated rates of return, whether determined on a rate base or operating margin basis, cannot be justified. In this testimony, I present a guideline which the Commission can utilize to adjudicate the company's proposed increase.

III. ISSUES

A. Contractual Services- Maintenance

Q. In your review of the filing and replies to Consumer Advocate Interrogatories, have you noted some relatively large expense variances in the test year as compared to prior years?

A. Yes. As a matter of normal analysis, I prepare a comparison of O&M expenses by account over a 3-year period. In this way, I can determine if there are any abnormal expenditures that are included in the company's test year claim. Upon determining whether such variances exist, I then request the company to explain the reasons behind the expense increases and make a determination as to whether some variances should be adjusted for ratemaking purposes.

In this proceeding, I noted a number of large variances, both increases and decreases. I am especially concerned with the increases that have occurred in the Contractual Services-Maintenance expense account between the twelve months ended October 31,1996 and the twelve months ended October 31, 1997, the test year.

Q. Before discussing these particular variances, please explain why you are mainly concerned with increased variances.

A. If the company considered some of the downward variances to be abnormal, then, I assume pro forma adjustments would have been made. Since no such adjustments were made, the Commission should consider such

expenditures to be normal. The burden is upon the company to make such adjustments, not upon myself or the Consumer Advocate.

Q. Please provide a three-year history of the expenses booked to the Contractual Services-Maintenance account for each of the three subdivisions.

A. The following summarizes actual expenses and variances for the three years:

Contractual Services-Maintenance Expense
Years Ended October 31

1995	+/-	%	1996	+/-	%	1997
			River Pines Water			
$1,239	$(5)	-.40%	$1,234	$2,250	182.33%	$3,484
			Wood Forest Water			
$2,516	$(10)	-0.40%	$2,506	$1,728	68.95%	$4,234
			Wood Forest Sewer			
$3,755	$(363)	-9.67%	$3,392	$2,184	64.39%	$5,576

As shown above, the variances between 1996 and 1997 were considerable as compared to the variances between 1995 and 1996.

Q. Did you ask the company to explain these variances?

A. Yes. The reply to CA Interrogatory No. 2-5 explains these variances as follows:

> "River Pines- Water paid JA Darby & Son Well Drilling $2,256.85 in September 1997 for repairs to one of the River Pines-Water wells. The River Pines Water system is more than 25 years old. There is no way to predict when significant repairs must be made to the system. Wood Forest Water paid

JA Darby & Son Well Drilling $1,900 in an attempt to salvage one of the Wood Forest-Water wells. This will not be a recurring charge. Wood Forest-Sewer had to replace a sewer line which was broken by roots during 1997. The cost of this repair was $1,326. Due to the age of the sewer plant and collection system there is no way to predict when major repairs will be needed."

Q. Did the company exclude any of these unusual expenses for ratemaking purposes?

A. Yes. The company correctly excluded the $1,900 spent for the Wood Forest-Water well because it "will not be a recurring charge". However, the two other maintenance expenditures were included in the overall expense claim.

Q. What levels of expenses should be included in the test year for ratemaking purposes?

A. The pro forma test year income statement should only include a level of expenses that are representative of future periods. The revenue requirement should be based only upon recurring expenditures. The company recognized this procedure by excluding expenditures for the Wood Forest-Water well.

However, the company admits that "there is no way to predict" whether claimed test year Contractual Services-Maintenance expenses for River Pines-Water and Wood Forest-Sewer will recur. In fact, as shown above, a comparison of the 1996 expenses to the 1995 expenses shows little variance. Therefore, the 1996 and 1995 expense levels appear to be more representative of future expenditures than the 1997 expenditures.

Q. What do you recommend?

A. I recommend that both the $2,256.85 maintenance expenditure for River Pines-Water and the $1,326 maintenance expenditure for Wood Forest-Sewer be amortized over a five-year period as being non-recurring. Since the company can not predict when similar expenditures will occur, a five-year amortization period is proper to balance the interests of both ratepayers and the company. These adjustments are shown on Schedule MAB-4.

B. Rate of Return

Q. Upon what methodology is the rate of return generally set for South Carolina water utilities?

A. Most small water companies in South Carolina are adjudicated on an operating margin basis, with the operating margin being defined as net income divided by total revenues. The reason for this is that many small water companies have a large balance of Contributions in Aid of Construction (CIAC) on their balance sheets. In general, CIAC represents plant paid for by other parties (usually developers). Since the plant was not paid for by the utility, it must be subtracted from the company's asset base (rate base) when rates are determined. After this deduction is accounted for, the resulting rate base is usually quite small, or even negative.

In the case of River Pines Water Systems, no CIAC is shown on the company's Consolidated Balance Sheet (Item #2, page 2 of the filing). Thus, this rate case could be, and probably should be, adjudicated utilizing a rate base/rate of return methodology. In fact, whenever CIAC is not a major deduction from rate base, the rate base/rate of return method should be utilized for water utilities because it is a more precise and more equitable determination than the operating margin methodology. At a minimum, rate base/rate of return can be used to evaluate the appropriateness of the approved operating margin.

Q. What overall rates of return are being requested by the company?

A. The company is requesting a 16.48% return on rate base for the water subdivisions, a 52.4% rate increase, and a 7.28% return on rate base for the

sewer division (incorrectly shown as 8.94% on Item #8 Sewer of the filing), a 17.5% rate increase, or a 11.36% overall rate of return.

Q. How were these rate increases determined?

A. The reply to CA Interrogatory No. 2-7 states:

> The shareholders of The Company have set a criteria that rates must cover current operating costs, plus a factor that represents average inflation over the next five years plus a minimum 12% return on net plant in service."

Q. Before commenting on the proposed 12% return on investment, please discuss the company's determination of rate base for the water companies.

A. Net plant in service for the water companies is shown to be $37,439 on Item #8 Water of the filing. However, this balance includes the wells at Wood Forest-Water which will no longer be in service, since that subdivision will be purchasing its water from the City of Rock Hill. As shown on the reply to CA Interrogatory No. 2-10, the net asset balance for these wells is $19,876 which should be subtracted from rate base, since they will no longer be used and useful in providing service. Utilizing the company's numbers, as shown below, the pro forma return on rate base at proposed rates increases from 16.48% to 31.41%.

River Pines Water Systems, Inc.
Pro Forma Return on Rate Base
Test Year Ended October 31, 1997
Water

	Company	Adjustment	Adjusted Company
Gross Plant in Service	$83,590	$(43,770)	$39,820
Less: Accum Deprec.	46,151	(23,894)	22,257
Net Plant in Service	37,439	(19,876)	17,563
Add: Cash Working Capital	4,371		4,371
Total Projected Rate Base	$41,810	$19,876	$21,934
Pro Forma Net Income	$6,889		$6,889
Pro Forma Return on Rate Base	16.48%		31.41%

Q. How does this adjustment affect the company's proposed 11.36% overall return on rate base?

A. As shown below, the overall return is increased from 11.36% to 14.40%.

River Pines Water Systems, Inc.
Pro Forma Return on Rate Base
Test Year Ended October 31, 1997
Overall

	Company	Adjustment	Adjusted Company
Rate Base	$94,236	$(19,876)	$74,360
Net Income	10,708		$10,708
Return on Rate Base	11.36%		14.40%

It must be remembered that these rates of return do not include my recommended expense adjustment. If this adjustment is accepted by the Commission, then, as shown on Schedule MAB-1, the requested rates of return would be even larger.

Q. Do you believe that the company's "criteria" of a 12% rate of return to be reasonable?

A. No, I do not. Though it is difficult to determine an appropriate rate of return for such a small company, and especially one without any long-term debt,

some guidance can be obtained from the Florida Public Service Commission (FPSC). Each year, the FPSC determines an authorized range of returns on common equity for water and wastewater utilities. A formulaic approach is utilized in order to minimize the contentiousness of this issue in a rate case setting.

In its Order No. PSC-98-0903-FOF-WS issued July 6, 1998, (which is attached as an Exhibit to this testimony) the FPSC stated:

> "Our calculation of an updated leverage formula results in a range of returns on equity from 8.57 percent to 9.85 percent based on a formula of 7.72 percent + .852/Equity Ratio." (page 1)

To be conservative, utilizing a 10% return on equity, a typical 60% debt and 40% equity ratio and a 7.72% cost of debt ("assumed Baa3 rate for April 1998 plus a 25 basis point private placement premium"), results in a 8.63% overall rate of return, as shown below. Therefore, the company's 12% criteria is very high.

Cost of Capital @10% Cost of Equity

	Ratio	Cost Rate	Weighted Cost
Common Equity	40.00%	10.00%	4.00%
Total Debt	60.00%	7.72%	4.63%
Total	100.00%		8.63%

Q. Have you determined the parameters of the company's request utilizing an operating margin basis?

A. Yes. The calculated operating margins are shown below:

River Pines Water Systems, Inc.
Pro Forma Operating Margins @ Proposed Rates

Net Income	Total Utility Sales	Operating Margin
	River Pines-Water	
$4,688	$16,361	28.65%
	Wood Forest-Water	
$2,201	$42,027	5.24%
	Total Water	
$6,889	$58,388	11.80%
	Wood-Forest-Sewer	
$3,819	$26,456	14.44%
	Consolidated	
$10,452	$84,844	12.43%

Therefore, again, even before making any pro forma expense adjustments, the company's operating margins appear more than adequate, except, perhaps, for Wood Forest-Water.

Q. Please prepare a schedule showing pro forma returns on rate base and operating margins if the Commission were to accept your expense adjustments.

A. The summary schedule is attached as Schedule MAB-1. This schedule shows that the total return on rate base increases from 11.36% to 18.33%, while the total operating margin increases from 12.62% to 16.00%.

Q. Have you calculated what the increase in rates might be if the Commission were to accept your adjustments and utilize an 8.63% overall return as discussed above?

A. Yes, Schedule MAB-5 shows this calculation. The calculated rate increase for the water subdivisions would be $10,237, a $6,822 reduction from the company's proposed increase of $17,059. The calculated rate increase for the sewer subdivision would be $7,105, a $9,954 reduction from the company's proposal of $17,059.

This schedule can be used by the Commission as guideline for adjudicating the company's rate request on a rate base/rate of return methodology. Since the 10% return on equity used in the calculation is above the recommendation of the Florida PSC, these increases should be considered to be at the upper end any increases that might be granted.

Q. Does this conclude your direct testimony in this proceeding?

A. Yes, it does.

Appendix A

MICHAEL A. BLEIWEIS

CONSULTING EXPERIENCE

IDAHO	
Idaho Electric Company	Docket Nos. 100726
Idaho Water Company	100727 100728
INDIANA	
Flowing Wells Water Company	Docket No. 34739
MASSACHUSETTS	
Hingham Water Company	Docket No. 19744
American Water Company	Docket No. 19900
NEW JERSEY	
Commonwealth Water Company	Docket Nos.: 784-274 819-781 842-100 WR8503245
Elizabethtown Water Company	Docket Nos.: 802-76 818-735 WR8504330
Mt. Holly Water Company	Docket Nos.: 805-314 819-801
Monmouth Consolidated Water Company	Docket Nos.: 819-816 828-723 831-1113 850-3267
Public Service Electric and Gas Co.	Docket No. 812-76

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CONSULTING EXPERIENCE

NEW JERSEY

Atlantic City Electric Company	Docket Nos.: 7911-9511 839-753(LEAC) 8410-1079(LEAC) ER8504434 8609980-4981 8709-1159&1160 8809-1053 ER90091090J ER92020253J
Jersey Central Power and Light Co.	Docket Nos.: 811-25 831-110 8507698 8601121(LEAC) ER87111295(LEAC) ER91121820J
Rockland Electric Company	Docket No. 827-612
Middlesex Water Company	Docket Nos.: 829-707 845-402
New Jersey Natural Gas Company	Docket Nos.: 831-46 838-687 (LPGA)
Hackensack Water Company	Docket Nos.: 837-622 847-698
Elizabethtown Gas Company	Docket Nos.: GR86121374 GR88080913(LPGA) GR8812-1321 GR8801-0217
Toms River Water Company	Docket No. WR92010081

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CONSULTING EXPERIENCE

OHIO		
	American Utilities Co. (water)	Docket No.80-999-AIR
PENNSYLVANIA		
	Philadelphia Electric Co. (Elec and Gas Divs)	Docket Nos.: R-80061225 R-811626 R-811719 R-822291 R-832410 R-842590 R-850152 R-860346-1307(f) R-880955-1307(f) R-891290-1307(f) R-911976-1307(f)
	Equitable Gas Company	Docket No. R-80041169
	Duquesne Light Company	Docket Nos.: R-811470 R-832337 M-00930404C001
	West Penn Power Company	Docket Nos.: R-811836 R-901609
	The Peoples Natural Gas Co.	Docket No. R-821906
	Pennsylvania Gas & Water Co. (Gas and Water)	Docket Nos.: R-821961 R-822102 R-891261
	Metropolitan Edison Company	Docket No. R-842770
	Pennsylvania Electric Co.	Docket No. R-842771
	Philadelphia Water Department	1985 Rate Increase 1990 Rate Increase 1992 Rate Increase

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CONSULTING EXPERIENCE

PENNSYLVANIA

Philadelphia Gas Works	1986 Rate Increase 1988 Rate Increase 1990 Rate Increase 1991 Rate Increase 1993-94 Operating Budget 1994-95 Operating Budget 1995-96 Operating Budget 1996-97 Operating Budget
UGI Corporation	Docket No. R-860344-1307(f) R-00932862
Columbia Gas of Pennsylvania	Docket Nos.: R-860527 R-87058 R-901873 R-911921-1307(f) R-932597-1307(f)
Western Pennsylvania Water Co.- Butler District	Docket No. R-832381
Pennsylvania-American Water Co.	Docket No. R-880916
T.W. Phillips Gas and Oil Co.	Docket Nos.: R-88194 R-891566
Philadelphia Suburban Water Co.	Docket No. R-891270
Newtown Artesian Water Co.	Docket No. R-911977
Indian Rock Water Company	Docket No. R-911971
Apollo Gas Company	Docket No. R-092254
Shenango Valley Water Company	Docket No. R-00922420

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CONSULTING EXPERIENCE

Pennsylvania Power & Light Company		Docket No. M-00930406C0001
Borough of Media Water Works		Docket No. R-00943098
PFG Gas, Inc./North Penn Gas, Inc.		Docket No. R-00953524
RHODE ISLAND		
Bristol County Water Company		Docket No. 1787
NEW MEXICO		
Gas Company of New Mexico		Case No. 1916
Public Service Co. of New Mexico		Case No. 1916
DELAWARE		
Delmarva Power & Light Co.		Docket Nos.: 86-24 91-20 92-85
Artesian Water Company		Docket Nos.: 90-10 92-5
Wilmington Suburban Water Co.		Docket No. 91-1
Delaware Electric Cooperative		Docket No. 91-37

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CONSULTING EXPERIENCE

SOUTH CAROLINA

South Carolina Pipeline Corp.	Docket No. 88-652-G
South Carolina Electric and Gas Co.	Docket Nos.: 88-695-G 92-009-G
Peoples Natural Gas Co. of SC	Docket No. 89-12-G
Carolina Water Service, Inc.	Docket No. 93-738-W/S
Tega Cay Water Service, Inc.	Docket No. 96-137-W/S

MAINE

Central Maine Power Co.	Docket No. 92-345

Mr. Bleiweis has also supervised or participated in the preparation of rate cases for companies in the states of Arizona, California and New York.

Schedule MAB-1

River Pines Water Systems, Inc.
Return on Rate Base
Operating Margins
Test Year Ended October 31, 1997

	Company -1	Adjustment -2	C.A. -3	Schedule MAB-
Net Income @ Prop Rates				
River Pines-Water	$4,688	$1,806	$6,494	2
Wood Forest-Water	2,201	0	2,201	2
Total Water	6,889	1,806	8,695	2
Wood Forest-Sewer	3,819	1,061	4,880	2
Total Consolidated	$ 10,708	$ 2,867	$ 13,575	2
Rate Base				
Total Water	$ 41,810	$ (20,102)	$ 21,708	3
Wood Forest-Sewer	52,476	(132)	52,344	3
Total Consolidated	$ 94,286	$ (20,234)	$ 74,052	
Return on Rate Base				
Total Water	16.48%	23.58%	40.05%	
Wood Forest-Sewer	7.28%	2.05%	9.32%	
Total Consolidated	11.36%	6.97%	18.33%	
Total Utility Sales				
River Pines-Water	$ 16,361	$ 0	$ 16,361	
Wood Forest-Water	42,027	0	42,027	
Total Water	58,388	0	58,388	
Wood Forest-Sewer	26,456	0	26,456	
Total Consolidated	$ 84,844	$ 0	$ 84,844	
Operating Margins				
River Pines-Water	28.65%	11.04%	39.69%	
Wood Forest-Water	5.24%	0.00%	5.24%	
Total Water	11.80%	3.09%	14.89%	
Wood Forest-Sewer	14.44%	4.01%	18.45%	
Total Consolidated	12.62%	3.38%	16.00%	

Schedule MAB-2

River Pines Water Systems, Inc.
Net Income @ Proposed Rates
Test Year Ended October 31, 1997

	Company -1	Adjustment -2	C.A. -3	Schedule MAB-
River Pines-Water	$4,688	$1,806	$6,494	4
Wood Forest- Water	2,201	0	2,201	
Total Water	6,889	1,806	8,695	
Wood Forest-Sewer	3,819	1,061	4,880	4
Total Consolidated	$ 10,708	$ 2,867	$ 13,575	

Schedule MAB-3

River Pines Water Systems, Inc.
Rate Base
Test Year At October 31, 1997

	Company -1	Adjustment -2	C.A. -3	Schedule MAB-
Water				
Gross Plant in Service	$ 83,590	$ (43,770)	$ 39,820	
Less: Accum Deprec	46,151	(23,894)	22,257	
Net Plant in Service	37,439	(19,876)	17,563	
Cash Working Capital	4,371	(226)	4,145	
Total	$ 41,810	$ (20,102)	$ 21,708	
Cash Working Capital				
O&M Expense	$ 37,507	$ (1,806)	$ 35,701	4
Less: Depreciation	2,540	0	2,540	
Net O&M	34,967	(1,806)	33,161	
Allowance Rate	0.125		0.125	
Cash Working Capital	$ 4,371	$ (226)	$ 4,145	
Sewer				
Gross Plant in Service	$ 108,002	$ (43,770)	$ 108,002	
Less: Accum Deprec	58,005	(23,894)	58,005	
Net Plant in Service	49,997	(19,876)	49,997	
Cash Working Capital	2,479	(132)	2,347	
Total	$ 52,476	$ (132)	$ 52,344	
Cash Working Capital				
O&M Expense	$ 22,637	$ (1,061)	$ 21,576	4
Less: Depreciation	2,802	0	2,802	
Net O&M	19,835	(1,061)	18,774	
Allowance Rate	0.125		0.125	
Cash Working Capital	$ 2,479	$ (132)	$ 2,347	

Source: Water Plant- CA Interrogatory 2-10

Schedule MAB-4

River Pines Water Systems, Inc.
Contractual Services-Maintenance
Test Year Ended October 31, 1997

	Company -1	Adjustment -2	C.A. -3
River Pines-Water	$2,257		
Amorization over 5 Years		($1,806)	$451
Wood Forest-Sewer	$1,326		
Amorization over 5 Years		($1,061)	$265

Source: CA Interrogatory 2-5

Schedule MAB-5

River Pines Water Systems, Inc.
Calculated Rate Increase
Test Year Ended October 31, 1997

Line No.				Source
1	Water Rate Base- C.A.	$	21,708	MAB-1
2	Rate of Return @10% Return on Equity		8.63%	
3	Pro Forma Net Income @ Prop Rates	$	1,873	1x2
4	Net Income @ Present Rates	$	(10,170)	
5	C.A. Adjustment		1,806	MAB-2
6	Adjusted Net Income	$	(8,364)	4+5
7	Calculated Rate Increase-Water	$	10,237	3-6
8	Company Requested Increase-Water	$	17,059	
9	Difference	$	(6,822)	7-8
10	Sewer Rate Base-C.A.	$	52,344	MAB-1
11	Rate of Return @10% Return on Equity		8.63%	
12	Pro Forma Net Income @ Prop Rates	$	4,517	10x11
13	Net Income @ Present Rates	$	(3,649)	
14	C.A. Adjustment		1,061	MAB-2
15	Adjusted Net Income	$	(2,588)	13+14
16	Calculated Rate Increase-Sewer	$	7,105	12-15
17	Company Requested Increase-Sewer	$	17,059	
18	Difference	$	(9,954)	16-17

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Annual reestablishment of authorized range of returns on common equity for water and wastewater utility, pursuant to Section 367.081(4)(f), F.S.	DOCKET NO. 980006-WS ORDER NO. PSC-98-0903-FOF-WS ISSUED: July 6, 1998

The following Commissioners participated in the disposition of this matter:

JULIA L. JOHNSON, Chairman
J. TERRY DEASON
SUSAN F. CLARK
JOE GARCIA
E. LEON JACOBS, JR.

NOTICE OF PROPOSED AGENCY ACTION
ORDER ESTABLISHING AUTHORIZED RANGE
OF RETURNS ON COMMON EQUITY

BY THE COMMISSION:

NOTICE is hereby given by the Florida Public Service Commission that the action discussed herein is preliminary in nature and will become final unless a person whose interests are substantially affected files a petition for a formal proceeding, pursuant to Rule 25-22.029, Florida Administrative Code.

Pursuant to Section 367.081 (4) (f), Florida Statutes, this Commission is authorized to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on equity for water and wastewater utilities. We last established this range of returns in Order No. PSC-97-0660-FOF-WS issued on June 10, 1997, in Docket No. 970006-WS. By that order, we found it appropriate to establish a range of returns from 9.21 percent to 10.46 percent.

Our calculation of an updated leverage formula results in a range of returns on equity from 8.57 percent to 9.85 percent based on a formula of 7.72 percent + .852/Equity Ratio. The midpoint of the 8.57 percent to 9.85 percent range has decreased by 63 basis points when compared to the existing midpoint.

In calculating the updated leverage formula, we utilized most of the same methodologies used in the 1995 leverage formula docket. By Order No. PSC-95-0892-FOF-WS, issued August 10, 1995, in Docket No. 950006-WS, we revised the methodology for calculating the leverage formula, following two workshops. We made one refinement in the updated formula regarding calculation of the historical Discounted Cash Flow result, as discussed later in this Order. Otherwise, the difference between the existing leverage formula and the updated formula is the result of changes in underlying market conditions; that is, changes in bond yields and required rates of return.

The basic assumptions, which remain unchanged from the previous three years, are that: business risk is similar for all water and wastewater utilities; the cost of equity is an exponential function of the equity ratio; the marginal weighted average cost of investor capital is constant over the 40 percent to 100 percent equity ratio range; and the cost rate at an assumed Moody's Baa3 bond rating, plus 25 basis points, is representative of the average marginal cost of debt to a Florida water and wastewater utility over a 40 percent to 100 percent equity ratio range.

The 9.85 percent return on common equity is divided into three segments. First, we derived an 8.93 percent return on equity by averaging the results of two Discounted Cash Flow (DCF) analyses, a Risk Premium analysis, and a Capital Asset Pricing Model (CAPM) analysis. We assigned one third weight to the average of the two DCF analyses, one third weight to the Risk Premium analysis, and one third weight to the CAPM analysis.

We applied the DCF models to an index of publicly traded water and wastewater utilities. The difference between the two applications is that one version relies on historic growth rates and the other version relies on projected growth rates. Prior to 1995, only a DCF analysis using historic growth rates was used because of a lack of projected financial information on publicly traded water and wastewater utilities. (See pages 3-4 of Attachment 1)

We made one refinement in calculating the historical DCF result. In the past, the result was the simple average of the calculated returns on equity for the six companies in the index. In calculating the current historical DCF result, we utilized a weighted average, weighted by market capitalization, which we find provides a result more closely related to the stock market.

We applied the Risk Premium model to an index of publicly traded natural gas utilities. In addition, we added a negative 66 basis point premium to the return indicated by the Risk Premium analysis of natural gas utilities. Using the difference between the average beta of the water and wastewater and natural gas indices (.59 - .70 = -.11) and the prospective market risk premium of 6.04 percent determined in our CAPM analysis, we calculated a natural gas premium of a negative 66 basis points. This adjustment is made to compensate for the perceived difference in risk between the index of natural gas utilities and the index of water and wastewater utilities. We noted in Order No. PSC-95-0982-FOF-WS, that this adjustment could be negative in the future if the average beta for the natural gas index were to rise above the average beta for the water and wastewater index, and once this change was adopted, this adjustment would be made regardless of whether the risk differential adjustment was positive or negative. We used this same application in the determination of the existing leverage formula. (See pages 1, 5, and 8 of Attachment 1)

Finally, we performed a CAPM analysis. This return is based on the market return for all dividend-paying stocks followed by Value Line, the yield on the 30-year Treasury bond projected by Blue Chip Financial Forecasts, and the average beta of the water and wastewater utilities followed by Value Line. (See page 6 of Attachment 1)

After determining the return on equity for the indices, we added a bond yield differential adjustment of 45 basis points to reflect the difference in risk between the indices of companies used in the DCF and Risk Premium models and an average water and wastewater utility in Florida. Next, we added a private placement premium of 25 basis points to recognize that Florida water and wastewater utilities do not have access to the public debt and equity markets. Finally, we added an adjustment of 22 basis points to reflect the required return on equity at a 40 percent equity ratio. (See page 1 of Attachment 1)

The bond yield differential adjustment of 45 basis points is comprised of the bond yield differential between the yield on A1-rated bonds and the yield on Baa3-rated bonds. (See page 7 of Attachment 1) The A1 rating is the average bond rating for both the natural gas index and water and wastewater index and the Baa3 rating is the bond rating assumed for the average water and wastewater utility in Florida. Baa3 is the lowest possible rating for investment grade bonds.

We added the private placement premium of 25 basis points to recognize that, because of their small size, lack of institutional interest in their securities, and the lack of liquidity of their issues, Florida water and wastewater utilities must rely on the private placement market to obtain capital. This premium is based on the results of Commission surveys of participants in the private placement market and a review of the financial literature.

The 22 basis point adjustment represents the difference between the required return on equity at a 40.0 percent equity ratio and the required rate of return at the 44.57 percent equity ratio average for the indices of water and wastewater utilities and natural gas utilities. (See pages 9-10 of Attachment 1) Using the most recently available capital structure for the index of publicly traded water and wastewater utilities and the index of natural gas utilities as a proxy for the capital structure of an average water and wastewater utility in Florida, we calculated the marginal cost of investor capital for an average water and wastewater utility in Florida to be 8.57 percent.

In summary, we find it appropriate to base the authorized range of returns on common equity for Florida water and wastewater utilities on the following formula:

$$\text{Return on Common Equity} = 7.72 \text{ percent} + \frac{0.852}{\text{Equity Ratio}}$$

We further limit the authorized return on common equity to a maximum of 9.85 percent for all equity ratios of less than 40 percent. The approved leverage formula produces a range of returns on common equity from 8.57 percent to 9.85 percent.

Upon expiration of the protest period, this docket shall remain open to allow us to monitor the movement in capital costs and to readdress the reasonableness of the leverage formula as conditions warrant.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the provisions of this Order, issued as proposed agency action, shall become final and effective unless an appropriate petition, in the form provided by Rule 25-22.036, Florida Administrative Code, is received by the Director, Division of Records and Reporting, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the

close of business on the date set forth in the "Notice of Further Proceedings or Judicial Review" attached hereto. It is further

ORDERED that the appropriate formula for measuring returns on common equity for water and wastewater utilities shall be as set forth in the body of this Order. It is further

ORDERED that returns on common equity are hereby capped at 9.85 percent for all water and wastewater utilities with equity ratios of less than 40 percent in order to discourage imprudent financial risk. It is further

ORDERED that all matters contained in Attachment 1 of this Order are incorporated herein by reference. It is further

ORDERED that upon expiration of the protest period, this docket shall remain open to allow this Commission to monitor the movement in capital costs and to readdress the reasonableness of the leverage formula as conditions warrant.

By ORDER of the Florida Public Service Commission this 6th day of July, 1998.

BLANCA S. BAYÓ, Director
Division of Records and Reporting

(S E A L)

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NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Mediation may be available on a case-by-case basis. If mediation is conducted, it does not affect a substantially interested person's right to a hearing.

The action proposed herein is preliminary in nature and will not become effective or final, except as provided by Rule 25-22.029, Florida Administrative Code. Any person whose substantial interests are affected by the action proposed by this order may file a petition for a formal proceeding, as provided by Rule 25-22.029(4), Florida Administrative Code, in the form provided by Rule 25-22.036(7)(a) and (f), Florida Administrative Code. This petition must be received by the Director, Division of Records and Reporting, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on July 27, 1998.

In the absence of such a petition, this order shall become effective on the day subsequent to the above date as provided by Rule 25-22.029(6), Florida Administrative Code.

Any objection or protest filed in this docket before the issuance date of this order is considered abandoned unless it satisfies the foregoing conditions and is renewed within the specified protest period.

If this order becomes final and effective on the date described above, any party substantially affected may request judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or by the First District Court of Appeal in the case of a water or wastewater utility by filing a notice of appeal with the Director, Division of Records and Reporting and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days of the effective date of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

Attachment 1
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SUMMARY OF RESULTS

Leverage Formula Update

	1996	1997	1998
(A) DCF ROE for Water Index (Historical)	10.32%	9.28%	9.96%[1]
(B) DCF ROE for Water Index (Projected)	9.13%	8.66%	8.39%
(C) Risk Premium ROE for Gas Index	9.57%	9.52%	8.80%
(D) Gas Index premium	.44%	(.24)%	(.66)%
(E) CAPM ROE for Water Index	10.17%	10.23%	9.46%
AVERAGE [(((A+B)/2)+(C+D)+E)/3]	9.97%	9.49%	8.93%
Bond Yield Differential	.49%	.49%	.45%
Private Placement Premium	.25%	.25%	.25%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	.29%	.23%	.22%
Cost of Equity for Average Florida WAW Utility at a 40% Equity Ratio	11.00%	10.46%	9.85%

1997 Leverage Formula (Currently in effect)

Return on Common Equity = 8.38% + .832/ER

Range of Returns on Equity = 9.21% - 10.46%

1998 Leverage Formula (Updated)

Return on Common Equity = 7.72% + .852/ER

Range of Returns on Equity = 8.57% - 9.85%

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[1]1998 DCF ROE for Water Index calculated using historical data weighted by Market Capitalization amounts listed in Value Line.

Marginal Cost of Investor Capital

Average Water and Wastewater Utility

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	44.57%	9.63%	4.29%
Total Debt	55.43%	7.72% *	4.28%
	100.00%		8.57%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio = 7.72% + 0.852/.40 = 9.85%

Marginal Cost of Investor Capital

Average Water & Wastewater Utility at 40% Equity Ratio

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00%	9.85%	3.94%
Total Debt	60.00%	7.72% *	4.63%
	100.00%		8.57%

Where: ER = Equity Ratio = Common Equity/(Common Equity + Preferred Equity + Long-Term Debt + Short-Term Debt)

* Assumed Baa3 rate for April 1998 plus a 25 basis point private placement premium.

Source: Moody's Credit Perspectives, 5/04/98

	Annual Rate of Change	D(1)	Current Avg. Stock Price	Reqd. ROE		Market Capital (mil.)	Weighted ROE
American Water Works	9.50%	$0.90	$30.66	12.17%		$2400	6.80%
Aquarion Company	1.50	1.67	32.50	6.55		225	0.34
California Water Ser. Co.	4.00	1.11	27.53	7.89		325	0.60
Consumers Water Co.	3.50	1.26	20.45	9.46		175	0.39
Philadelphia Sub. Corp.	2.50	0.67	21.03	5.59		550	0.72
United Water Resources	2.50	0.94	17.47	7.77		625	1.13
Average	3.92%	$1.09	$24.94	8.24%	Total	$4300	9.96%

DCF Analysis:

K = D(1)/P(0) + g = Investors' required rate of return

D(1) = Current Dividend 1998 x g

P(0) = Current stock price = April 1998 average stock price

g = Historical growth in dividends = Annual Rate of Change - Past 10 years.

Source: Standard & Poor's Stock Guide, May 1998; Current Dividend, Stock Price
Value Line 5/8/98; Annual Rate of Change, Market Capital

COST OF EQUITY FOR WATER INDEX COMPANIES

DISCOUNTED CASH FLOW MODEL

COST OF EQUITY

INDEX: VALUE LINE WATER UTILITY INDUSTRY

YEAR: 1998 Quarter: 1st

Value Line Issue Ed 9 2006/98

									APRIL		
COMPANY	DIV1	DIV2	DIV3	DIV4	EPS4	ROE4	GR1-4	GR4+	HI-PR	LO-PR	AVER-PR
AMERICAN WATER WORKS	0.82	0.90	1.00	1.10	2.20	12.00	1.1029	1.0600	33.188	28.125	30.656
AQUARION CO.	1.65	1.71	1.78	1.85	2.45	12.00	1.0389	1.0294	33.875	31.125	32.500
CALIFORNIA WATER SVC	1.10	1.19	1.29	1.40	2.00	13.50	1.0837	1.0405	30.188	24.875	27.531
CONSUMERS WATER	1.22	1.23	1.23	1.24	1.50	9.50	1.0054	1.0165	21.406	19.500	20.453
PHILADELPHIA SUBURBAN	0.65	0.72	0.81	0.90	1.35	12.00	1.1146	1.0400	22.563	19.500	21.031
UNITED WATER RESOURCES	0.92	0.95	0.97	1.00	1.35	10.50	1.0282	1.0272	18.438	16.500	17.469
AVERAGE	1.0600	1.1179	1.1806	1.2483	1.81	11.5833	1.0623	1.0356			24.940

$24.19 = April 1998 average stock price less 3% flotation costs, or Po(1-fc)

8.39% = Cost of equity required to match the current stock price with the expected cash flows

Sources:
1. Stock Prices - S&P Stock Guide , May 1998 Edition

2. DPS, EPS, ROE - Value Line Edition 9, February 6, 1998.

Risk Premium Cost of Equity for Moody's Natural Gas Distribution Index

Estimated Monthly Risk Premium	2.902 %	(1)
Blue Chip Forecast for 30-Year Treasury Bond	5.90 %	(2)
	8.80 %	

Gas Risk Premium Adjustment

Water Industry Beta	.59
Gas Industry Beta	.70
difference	(.11)
Market return Premium (11.94% - 5.90%)	6.04%
(.11) x 6.04% =	(.66)%

Sources:

(1) Page 8 of Attachment 1

(2) Blue Chip Financial Forecasts, May 1, 1998

Capital Asset Pricing Model Cost of Equity for
Water and Wastewater Industry

CAPM analysis formula

K = RF + Beta(MR - RF)

K = Investor's required rate of return

RF = Risk-free rate (Blue Chip forecast for 30-year Treasury bond)

Beta = Measure of industry-specific risk (Average for water utilities followed by Value Line)

MR = Market return

9.46% = 5.90% + .59(11.94% - 5.90%)

Source: Blue Chip Financial Forecasts, May 1, 1998
Value Screen, May 1998

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BOND YIELD DIFFERENTIALS
Public Utility Long Term Bond Yield Averages
Source Moody's Credit Perspectives

UPDATED 09/15/98

120 Month Average - 0.0909 0.0909 0.0551 0.0551 0.0551 0.0997 0.0997 0.0997 0.0997

YEAR	MONTH	Aaa	SPREAD	Aa1	SPREAD	Aa2	SPREAD	Aa3	SPREAD	A1	SPREAD	A2	SPREAD	A3	SPREAD	Baa1	SPREAD	Baa2	SPREAD	Baa3
	APR	8.94	0.04	6.98	0.04	7.02	0.05	7.07	0.05	7.11	0.05	7.16	0.07	7.23	0.07	7.30	0.07	7.37	0.07	7.44
	MAR	8.96	0.04	7.00	0.04	7.04	0.04	7.08	0.04	7.12	0.04	7.16	0.07	7.23	0.07	7.30	0.07	7.37	0.07	7.44
	FEB	8.91	0.04	6.95	0.04	6.99	0.04	7.03	0.04	7.08	0.04	7.12	0.08	7.20	0.08	7.28	0.08	7.36	0.08	7.44
1998	JAN	8.85	0.05	6.90	0.05	6.94	0.04	6.98	0.04	7.01	0.04	7.05	0.08	7.13	0.08	7.20	0.08	7.28	0.08	7.36
	DEC	8.99	0.04	7.03	0.04	7.07	0.03	7.10	0.03	7.13	0.03	7.16	0.08	7.24	0.08	7.33	0.08	7.41	0.08	7.49
	NOV	7.09	0.03	7.12	0.03	7.15	0.03	7.18	0.03	7.22	0.03	7.25	0.08	7.33	0.08	7.41	0.08	7.49	0.08	7.57
	OCT	7.18	0.05	7.23	0.05	7.28	0.02	7.30	0.02	7.33	0.02	7.35	0.11	7.46	0.11	7.56	0.11	7.67	0.11	7.78
	SEP	7.45	0.05	7.50	0.05	7.54	0.01	7.55	0.01	7.57	0.01	7.58	0.09	7.67	0.09	7.75	0.09	7.84	0.09	7.93
	AUG	7.39	0.04	7.43	0.04	7.46	0.02	7.48	0.02	7.49	0.02	7.51	0.14	7.65	0.14	7.79	0.14	7.93	0.14	8.07
	JUL	7.29	0.07	7.36	0.07	7.43	0.02	7.45	0.02	7.46	0.02	7.48	0.13	7.61	0.13	7.74	0.13	7.87	0.13	8.00
	JUN	7.65	0.09	7.62	0.06	7.68	0.01	7.69	0.01	7.71	0.01	7.72	0.13	7.85	0.13	7.99	0.13	8.12	0.13	8.25
	MAY	7.72	0.07	7.79	0.07	7.85	0.01	7.86	0.01	7.88	0.01	7.89	0.13	8.02	0.13	8.15	0.13	8.28	0.13	8.41
	APR	7.87	0.07	7.94	0.07	8.00	0.01	8.01	0.01	8.02	0.01	8.03	0.13	8.16	0.13	8.29	0.13	8.42	0.13	8.55
	MAR	7.70	0.07	7.77	0.07	7.84	0.01	7.85	0.01	7.86	0.01	7.87	0.13	8.00	0.13	8.13	0.13	8.26	0.13	8.39
	FEB	7.47	0.07	7.54	0.07	7.60	0.01	7.61	0.01	7.63	0.01	7.64	0.13	7.77	0.13	7.89	0.13	8.02	0.13	8.15
1997	JAN	7.53	0.07	7.61	0.07	7.68	0.03	7.71	0.03	7.74	0.03	7.77	0.14	7.91	0.14	8.04	0.14	8.18	0.14	8.32
	DEC	7.33	0.06	7.39	0.06	7.44	0.05	7.49	0.05	7.54	0.05	7.59	0.13	7.72	0.13	7.85	0.13	7.98	0.13	8.11
	NOV	7.21	0.06	7.27	0.06	7.32	0.06	7.38	0.06	7.43	0.06	7.49	0.13	7.62	0.13	7.74	0.13	7.87	0.13	8.00
	OCT	7.59	0.05	7.55	0.05	7.60	0.06	7.66	0.06	7.71	0.06	7.77	0.13	7.90	0.13	8.02	0.13	8.15	0.13	8.28
	SEPT	7.76	0.04	7.80	0.04	7.84	0.06	7.90	0.06	7.95	0.06	8.01	0.13	8.14	0.13	8.28	0.13	8.41	0.13	8.54
	AUG	7.59	0.03	7.63	0.03	7.66	0.06	7.72	0.06	7.78	0.06	7.84	0.14	7.98	0.14	8.11	0.14	8.25	0.14	8.39
	JULY	7.78	0.02	7.81	0.02	7.83	0.06	7.89	0.06	7.96	0.06	8.02	0.14	8.16	0.14	8.30	0.14	8.44	0.14	8.58
	JUNE	7.83	0.02	7.85	0.02	7.87	0.06	7.93	0.06	8.00	0.06	8.06	0.15	8.21	0.15	8.36	0.15	8.51	0.15	8.66
	MAY	7.73	0.03	7.76	0.03	7.79	0.06	7.85	0.06	7.92	0.06	7.98	0.16	8.14	0.16	8.29	0.16	8.45	0.16	8.61
	APR	7.60	0.05	7.65	0.05	7.70	0.06	7.76	0.06	7.83	0.06	7.89	0.14	8.03	0.14	8.18	0.14	8.32	0.14	8.46
	MAR	7.45	0.05	7.50	0.05	7.55	0.06	7.61	0.06	7.67	0.06	7.73	0.14	7.87	0.14	8.01	0.14	8.15	0.14	8.29
	FEB	7.11	0.04	7.16	0.04	7.20	0.06	7.26	0.06	7.31	0.06	7.37	0.14	7.51	0.14	7.64	0.14	7.78	0.14	7.92
1996	JAN	6.92	0.05	6.97	0.05	7.02	0.07	7.09	0.07	7.15	0.07	7.22	0.14	7.36	0.14	7.50	0.14	7.64	0.14	7.78
	DEC	6.84	0.05	6.89	0.05	7.03	0.07	7.10	0.07	7.18	0.07	7.23	0.13	7.36	0.13	7.50	0.13	7.63	0.13	7.76
	NOV	7.13	0.04	7.18	0.04	7.22	0.07	7.29	0.07	7.36	0.07	7.43	0.13	7.56	0.13	7.68	0.13	7.81	0.13	7.94
	OCT	7.23	0.04	7.27	0.04	7.30	0.05	7.35	0.05	7.41	0.05	7.46	0.12	7.58	0.12	7.70	0.12	7.82	0.12	7.94
	SEPT	7.42	0.03	7.45	0.03	7.48	0.05	7.53	0.05	7.57	0.05	7.62	0.12	7.74	0.12	7.86	0.12	7.98	0.12	8.10
	AUG	7.66	0.03	7.69	0.03	7.71	0.04	7.75	0.04	7.79	0.04	7.83	0.14	7.97	0.14	8.10	0.14	8.24	0.14	8.38
	JULY	7.51	0.04	7.55	0.04	7.60	0.03	7.63	0.03	7.67	0.03	7.70	0.14	7.84	0.14	7.97	0.14	8.11	0.14	8.25
	JUNE	7.39	0.05	7.44	0.05	7.49	0.04	7.53	0.04	7.56	0.04	7.60	0.14	7.74	0.14	7.87	0.14	8.01	0.14	8.15
	MAY	7.71	0.05	7.76	0.05	7.80	0.04	7.84	0.04	7.87	0.04	7.91	0.13	8.04	0.13	8.17	0.13	8.30	0.13	8.43
	APR	8.08	0.05	8.13	0.05	8.17	0.03	8.20	0.03	8.24	0.03	8.27	0.13	8.40	0.13	8.54	0.13	8.67	0.13	8.80
	MAR	8.18	0.05	8.24	0.05	8.29	0.03	8.32	0.03	8.34	0.03	8.37	0.13	8.50	0.13	8.63	0.13	8.76	0.13	8.89
	FEB	8.33	0.04	8.39	0.06	8.45	0.02	8.47	0.02	8.50	0.02	8.52	0.14	8.66	0.14	8.79	0.14	8.93	0.14	9.07
1995	JAN	8.53	0.07	8.60	0.07	8.66	0.02	8.68	0.02	8.71	0.02	8.73	0.14	8.87	0.14	9.01	0.14	9.15	0.14	9.29
	DEC	8.55	0.07	8.62	0.07	8.69	0.02	8.71	0.02	8.74	0.02	8.76	0.13	8.89	0.13	9.03	0.13	9.16	0.13	9.29
	NOV	8.77	0.06	8.84	0.06	8.90	0.03	8.93	0.03	8.95	0.03	8.98	0.12	9.10	0.12	9.23	0.12	9.35	0.12	9.47
	OCT	8.65	0.07	8.72	0.07	8.78	0.03	8.81	0.03	8.83	0.03	8.86	0.13	8.99	0.13	9.11	0.13	9.24	0.13	9.37
	SEP	8.41	0.08	8.49	0.08	8.56	0.03	8.59	0.03	8.61	0.03	8.64	0.11	8.75	0.11	8.87	0.11	8.98	0.11	9.09
	AUG	8.15	0.09	8.24	0.09	8.32	0.03	8.35	0.03	8.38	0.03	8.41	0.11	8.52	0.11	8.63	0.11	8.74	0.11	8.85
	JUL	8.21	0.09	8.30	0.09	8.38	0.03	8.41	0.03	8.44	0.03	8.47	0.11	8.58	0.11	8.69	0.11	8.80	0.11	8.91
	JUN	8.07	0.07	8.14	0.07	8.21	0.03	8.24	0.03	8.28	0.03	8.31	0.11	8.42	0.11	8.53	0.11	8.64	0.11	8.75
	MAY	8.11	0.07	8.18	0.07	8.24	0.03	8.27	0.03	8.30	0.03	8.33	0.09	8.42	0.09	8.52	0.09	8.61	0.09	8.70
	APR	8.00	0.06	8.06	0.06	8.12	0.03	8.15	0.03	8.19	0.03	8.22	0.08	8.30	0.08	8.39	0.08	8.47	0.08	8.55
	MAR	7.60	0.07	7.67	0.07	7.74	0.04	7.78	0.04	7.81	0.04	7.85	0.09	7.94	0.09	8.02	0.09	8.11	0.08	8.20
	FEB	7.19	0.08	7.27	0.08	7.34	0.04	7.38	0.04	7.43	0.04	7.47	0.10	7.57	0.10	7.66	0.10	7.76	0.10	7.86
1994	JAN	7.05	0.06	7.12	0.06	7.18	0.05	7.23	0.05	7.28	0.05	7.33	0.11	7.44	0.11	7.55	0.11	7.66	0.11	7.77
	DEC	7.06	0.06	7.12	0.06	7.18	0.05	7.23	0.05	7.28	0.05	7.33	0.13	7.47	0.13	7.60	0.13	7.73	0.13	7.86
	NOV	7.06	0.06	7.12	0.06	7.17	0.04	7.21	0.04	7.25	0.04	7.30	0.13	7.43	0.13	7.56	0.13	7.69	0.13	7.82
	OCT	6.75	0.07	6.82	0.07	6.89	0.05	6.94	0.05	6.98	0.05	7.03	0.08	7.11	0.08	7.19	0.08	7.27	0.08	7.35
	SEP	6.76	0.06	6.83	0.06	6.89	0.05	6.94	0.05	6.99	0.05	7.04	0.10	7.14	0.10	7.25	0.10	7.35	0.10	7.45
	AUG	6.94	0.07	7.01	0.07	7.07	0.06	7.13	0.06	7.19	0.06	7.25	0.11	7.36	0.11	7.48	0.11	7.59	0.11	7.70
	JUL	7.25	0.07	7.32	0.07	7.38	0.05	7.43	0.05	7.48	0.05	7.54	0.13	7.67	0.13	7.80	0.13	7.93	0.13	8.06
	JUN	7.37	0.09	7.46	0.09	7.54	0.07	7.61	0.07	7.68	0.07	7.75	0.10	7.85	0.10	7.95	0.10	8.05	0.10	8.15
	MAY	7.44	0.10	7.54	0.10	7.64	0.07	7.71	0.07	7.79	0.07	7.86	0.11	7.97	0.11	8.07	0.11	8.18	0.11	8.29
	APR	7.50	0.07	7.57	0.07	7.64	0.06	7.70	0.06	7.75	0.06	7.81	0.10	7.91	0.10	8.01	0.10	8.11	0.10	8.21
	MAR	7.64	0.06	7.70	0.06	7.76	0.05	7.81	0.05	7.85	0.05	7.90	0.07	7.97	0.07	8.03	0.07	8.10	0.07	8.17
	FEB	7.75	0.09	7.84	0.09	7.92	0.04	7.96	0.04	8.00	0.04	8.04	0.09	8.13	0.09	8.22	0.09	8.31	0.09	8.40
1993	JAN	7.94	0.10	8.04	0.10	8.14	0.04	8.18	0.04	8.23	0.04	8.27	0.10	8.37	0.10	8.47	0.10	8.57	0.10	8.67
	DEC	8.01	0.15	8.17	0.15	8.32	0.04	8.36	0.04	8.39	0.04	8.43	0.09	8.52	0.09	8.60	0.09	8.69	0.09	8.78
	NOV	8.11	0.20	8.31	0.20	8.51	0.04	8.55	0.04	8.59	0.04	8.63	0.08	8.71	0.08	8.78	0.09	8.86	0.08	8.94
	OCT	8.06	0.18	8.24	0.18	8.42	0.04	8.46	0.04	8.50	0.04	8.54	0.07	8.61	0.07	8.69	0.07	8.76	0.07	8.83
	SEP	8.04	0.12	8.16	0.12	8.28	0.04	8.32	0.04	8.36	0.04	8.40	0.05	8.45	0.05	8.49	0.05	8.54	0.05	8.59
	AUG	8.04	0.13	8.17	0.13	8.30	0.05	8.35	0.05	8.39	0.05	8.44	0.05	8.49	0.05	8.53	0.05	8.58	0.05	8.63
	JUL	8.12	0.17	8.29	0.17	8.45	0.04	8.49	0.04	8.53	0.04	8.57	0.04	8.61	0.04	8.65	0.04	8.69	0.04	8.73
	JUN	8.26	0.18	8.45	0.18	8.63	0.05	8.68	0.05	8.73	0.05	8.78	0.04	8.82	0.04	8.86	0.04	8.90	0.04	8.94
	MAY	8.32	0.18	8.51	0.18	8.69	0.06	8.75	0.06	8.81	0.06	8.87	0.05	8.92	0.05	8.96	0.05	9.01	0.05	9.06
	APR	8.36	0.20	8.56	0.20	8.76	0.06	8.82	0.06	8.87	0.06	8.93	0.06	8.99	0.06	9.05	0.06	9.11	0.06	9.17
	MAR	8.39	0.21	8.61	0.21	8.82	0.05	8.87	0.05	8.92	0.05	8.97	0.06	9.03	0.06	9.10	0.06	9.16	0.06	9.22
	FEB	8.30	0.23	8.53	0.23	8.76	0.06	8.82	0.06	8.87	0.06	8.93	0.05	8.98	0.05	9.04	0.05	9.09	0.05	9.14
1992	JAN	8.22	0.20	8.43	0.20	8.63	0.07	8.70	0.07	8.77	0.07	8.84	0.05	8.89	0.05	8.93	0.05	8.98	0.05	9.03
	DEC	8.38	0.17	8.55	0.17	8.71	0.06	8.77	0.06	8.82	0.06	8.88	0.06	8.94	0.05	8.99	0.05	9.07	0.06	9.13
	NOV	8.52	0.17	8.70	0.17	8.87	0.06	8.93	0.06	8.99	0.06	9.05	0.08	9.13	0.08	9.20	0.08	9.28	0.08	9.36
	OCT	8.57	0.18	8.75	0.17	8.92	0.07	8.99	0.07	9.05	0.07	9.12	0.07	9.19	0.07	9.25	0.07	9.32	0.07	9.39
	SEP	8.65	0.15	8.80	0.15	8.95	0.07	9.02	0.07	9.09	0.07	9.16	0.06	9.22	0.06	9.28	0.06	9.34	0.06	9.40
	AUG	8.81	0.13	8.94	0.13	9.06	0.08	9.14	0.08	9.21	0.08	9.29	0.06	9.35	0.06	9.41	0.06	9.47	0.06	9.53
	JUL	9.10	0.08	9.18	0.08	9.26	0.10	9.36	0.10	9.45	0.10	9.55	0.05	9.60	0.05	9.64	0.05	9.69	0.05	9.74
	JUN	9.10	0.09	9.19	0.09	9.28	0.10	9.38	0.10	9.49	0.10	9.59	0.07	9.66	0.07	9.73	0.07	9.80	0.07	9.87
	MAY	8.93	0.11	9.05	0.11	9.16	0.09	9.25	0.09	9.35	0.09	9.44	0.07	9.51	0.07	9.57	0.07	9.64	0.07	9.71
	APR	8.95	0.10	9.05	0.10	9.14	0.11	9.25	0.11	9.35	0.11	9.46	0.06	9.52	0.06	9.58	0.06	9.64	0.06	9.70
	MAR	9.04	0.09	9.14	0.09	9.23	0.11	9.34	0.11	9.44	0.11	9.55	0.06	9.61	0.06	9.68	0.06	9.74	0.06	9.80
	FEB	8.92	0.12	9.04	0.12	9.16	0.10	9.26	0.10	9.37	0.10	9.47	0.07	9.54	0.07	9.61	0.07	9.68	0.07	9.75
1991	JAN	9.17	0.11	9.28	0.11	9.39	0.11	9.50	0.11	9.60	0.11	9.71	0.08	9.79	0.08	9.88	0.08	9.96	0.08	10.04
	DEC	9.18	0.12	9.30	0.12	9.42	0.10	9.52	0.10	9.63	0.10	9.73	0.08	9.81	0.08	9.88	0.08	9.96	0.08	10.04
	NOV	9.43	0.08	9.51	0.08	9.59	0.10	9.69	0.10	9.80	0.10	9.90	0.07	9.97	0.07	10.05	0.07	10.12	0.07	10.19
	OCT	9.66	0.06	9.72	0.06	9.77	0.09	9.86	0.09	9.96	0.09	10.05	0.08	10.13	0.08	10.20	0.08	10.28	0.08	10.36
	SEP	9.73	0.07	9.80	0.07	9.87	0.08	9.95	0.08	10.04	0.08	10.12	0.07	10.19	0.07	10.25	0.07	10.32	0.07	10.39
	AUG	9.54	0.12	9.66	0.12	9.78	0.08	9.83	0.05	9.87	0.05	9.92	0.07	9.99	0.07	10.05	0.07	10.12	0.07	10.19
	JUL	9.36	0.13	9.49	0.13	9.61	0.05	9.66	0.05	9.70	0.05	9.75	0.06	9.81	0.06	9.86	0.06	9.92	0.06	9.98
	JUN	9.38	0.11	9.49	0.11	9.60	0.07	9.67	0.07	9.73	0.07	9.80	0.05	9.85	0.05	9.91	0.05	9.96	0.05	10.01
	MAY	9.58	0.13	9.71	0.13	9.83	0.06	9.89	0.06	9.94	0.06	10.00	0.05	10.05	0.05	10.11	0.05	10.16	0.05	10.21
	APR	9.60	0.11	9.71	0.11	9.81	0.04	9.85	0.04	9.88	0.04	9.92	0.07	9.99	0.07	10.06	0.07	10.13	0.07	10.20
	MAR	9.48	0.06	9.54	0.06	9.60	0.08	9.68	0.08	9.77	0.08	9.85	0.07	9.92	0.07	9.99	0.07	10.06	0.07	10.13
	FEB	9.35	0.11	9.46	0.11	9.57	0.06	9.63	0.06	9.70	0.06	9.76	0.07	9.83	0.07	9.89	0.07	9.96	0.07	10.03
1990	JAN	9.08	0.16	9.24	0.16	9.39	0.06	9.45	0.06	9.50	0.06	9.56	0.06	9.62	0.06	9.68	0.06	9.74	0.06	9.80
	DEC	8.92	0.17	9.09	0.17	9.26	0.06	9.32	0.06	9.38	0.06	9.44	0.05	9.49	0.05	9.55	0.05	9.60	0.05	9.65
	NOV	8.92	0.17	9.09	0.17	9.25	0.09	9.34	0.09	9.42	0.09	9.51	0.04	9.55	0.04	9.60	0.04	9.64	0.04	9.68
	OCT	9.01	0.13	9.15	0.13	9.28	0.09	9.37	0.09	9.45	0.09	9.54	0.03	9.57	0.03	9.61	0.03	9.64	0.03	9.67
	SEP	9.10	0.13	9.23	0.13	9.35	0.08	9.43	0.08	9.50	0.08	9.58	0.04	9.62	0.04	9.66	0.04	9.70	0.04	9.74
	AUG	9.02	0.13	9.15	0.13	9.27	0.08	9.35	0.08	9.44	0.08	9.52	0.04	9.56	0.04	9.60	0.04	9.64	0.04	9.68
	JUL	8.98	0.13	9.11	0.13	9.23	0.09	9.32	0.09	9.41	0.09	9.50	0.05	9.55	0.05	9.59	0.05	9.64	0.05	9.69
	JUN	9.13	0.12	9.25	0.12	9.37	0.09	9.46	0.09	9.55	0.09	9.64	0.05	9.69	0.05	9.75	0.05	9.80	0.05	9.85
	MAY	9.80	0.09	9.70	0.09	9.79	0.07	9.86	0.07	9.92	0.07	9.99	0.10	10.09	0.10	10.19	0.10	10.29	0.10	10.39
	APR	9.88	0.07	9.95	0.07	10.02	0.05	10.07	0.05	10.13	0.05	10.18	0.10	10.28	0.10	10.39	0.10	10.49	0.10	10.59
	MAR	9.87	0.09	9.96	0.09	10.05	0.06	10.11	0.06	10.17	0.06	10.23	0.09	10.32	0.09	10.41	0.09	10.50	0.09	10.58
	FEB	9.71	0.11	9.82	0.11	9.93	0.05	9.98	0.05	10.02	0.05	10.07	0.10	10.17	0.10	10.28	0.10	10.38	0.10	10.48
1989	JAN	9.72	0.09	9.81	0.09	9.89	0.06	9.95	0.06	10.02	0.06	10.08	0.10	10.18	0.10	10.28	0.10	10.38	0.10	10.48
	DEC	9.87	0.11	9.79	0.11	9.90	0.05	9.95	0.05	10.01	0.05	10.06	0.13	10.19	0.13	10.31	0.13	10.44	0.13	10.57
	NOV	9.52	0.09	9.71	0.09	9.79	0.06	9.85	0.06	9.91	0.06	9.97	0.11	10.08	0.11	10.20	0.11	10.31	0.11	10.42
	OCT	9.52	0.14	9.66	0.14	9.80	0.03	9.83	0.03	9.87	0.03	9.90	0.15	10.05	0.15	10.20	0.15	10.35	0.15	10.50
	SEP	10.15	0.10	10.25	0.10	10.34	0.09	10.43	0.09	10.52	0.09	10.61	0.17	10.78	0.17	10.96	0.17	11.13	0.17	11.30
	AUG	10.66	0.10	10.76	0.10	10.85	0.11	10.96	0.11	11.06	0.11	11.17	0.17	11.34	0.17	11.52	0.17	11.69	0.17	11.86
	JUL	10.50	0.13	10.63	0.13	10.76	0.09	10.85	0.09	10.95	0.09	11.04	0.18	11.20	0.18	11.38	0.18	11.56	0.18	11.68
	JUN	10.27	0.13	10.40	0.13	10.52	0.09	10.61	0.09	10.70	0.09	10.79	0.16	10.95	0.16	11.11	0.16	11.27	0.16	11.43
	MAY	10.29	0.12	10.41	0.12	10.53	0.09	10.62	0.09	10.72	0.09	10.81	0.19	11.00	0.19	11.19	0.19	11.38	0.19	11.57

ESTIMATED MONTHLY RISK PREMIUMS
MOODY'S NAT'L GAS DISTRIBUTION INDEX
1979 - 1996

YEAR	MONTH	Quarterly Cost of Equity Gas	Annual Cost of Equity Gas	Risk Free Rate	Risk Premium Quarterly	Risk Premium Annual
	OCT	8.813	8.675	5.99	2.823	2.685
	NOV	8.843	8.693	5.93	2.913	2.763
	DEC	9.136	8.968	6.21	2.926	2.758
1994	JAN	9.133	8.960	6.24	2.893	2.720
	FEB	8.805	8.632	6.28	2.525	2.352
	MAR	8.885	8.721	6.49	2.395	2.231
	APR	9.126	8.965	6.90	2.226	2.065
	MAY	9.431	9.232	7.25	2.181	1.982
	JUN	9.550	9.361	7.40	2.150	1.961
	JUL	9.737	9.553	7.39	2.347	2.163
	AUG	9.723	9.514	7.57	2.153	1.944
	SEP	9.802	9.599	7.48	2.322	2.119
	OCT	9.921	9.727	7.69	2.231	2.037
	NOV	9.813	9.618	7.93	1.883	1.688
	DEC	10.198	9.972	8.07	2.128	1.902
1995	JAN	10.342	10.124	7.86	2.482	2.264
	FEB	10.071	9.831	7.83	2.241	2.001
	MAR	9.891	9.677	7.60	2.291	2.077
	APR	9.865	9.669	7.44	2.425	2.229
	MAY	9.228	9.036	7.35	1.876	1.686
	JUNE	9.889	9.679	6.93	2.958	2.749
	JULY	9.958	9.667	6.57	3.288	3.097
	AUGUST	9.825	9.656	6.71	3.175	2.946
	SEPT	9.956	9.738	6.85	3.106	2.888
	OCT	9.502	9.323	6.55	2.952	2.773
	NOV	9.573	9.393	6.37	3.203	3.023
	DEC	9.622	9.431	6.25	3.372	3.181
1996	JAN	9.788	9.603	6.06	3.728	3.543
	FEB	9.216	9.032	6.05	3.166	2.982
	MAR	9.255	9.085	6.24	3.015	2.845
	APR	9.339	9.227	6.60	2.789	2.627
	MAY	9.748	9.555	6.79	2.958	2.765
	JUN	9.816	9.636	6.92	2.896	2.716
	JUL	9.710	9.552	7.05	2.660	2.502
	AUG	10.158	9.957	7.03	3.128	2.927
	SEP	9.934	9.810	6.84	3.144	2.970
	OCT	10.241	10.072	7.02	3.221	3.052
	NOV	9.930	9.760	6.80	3.130	2.960
	DEC	9.781	9.616	6.48	3.301	3.136
1997	JAN	9.894	9.741	6.55	3.344	3.191
	FEB	9.768	9.575	6.82	2.948	2.755
	MAR	9.838	9.658	6.68	3.158	2.978
	APR	9.932	9.766	6.83	3.102	2.936
	MAY	10.357	10.148	7.08	3.277	3.068
	JUN	10.199	10.018	6.93	3.269	3.088
	JUL	10.056	9.901	6.77	3.286	3.131
	AUG	10.107	9.920	6.51	3.597	3.410
	SEP	10.124	9.955	6.57	3.554	3.385
	OCT	10.010	9.865	6.49	3.520	3.375
	NOV	10.032	9.869	6.32	3.712	3.549
	DEC	9.725	9.576	6.10	3.625	3.476
1998	JAN	9.693	9.563	5.98	3.713	3.583
	FEB	9.529	9.371	5.81	3.719	3.561
	MAR	9.638	9.493	5.88	3.758	3.613
	APR	9.662	9.533	5.95	3.712	3.583
	MAY	9.600	9.443	5.92	3.680	3.523
	AVERAGE RISK PREMIUM				2.864	2.637

UPDATED: 06/18/98

SOURCE: Value Line 1979-1998
Moody's Bond Survey
U.S. Treasuries - 30-Year Bond

Natural Gas Index

12/31/97 Equity Ratios of Water Index Companies

	Book Value Per Share	Common Shares Outstanding (millions)	Common Equity (millions)	Total Debt (millions)	Preferred Equity (millions)	Equity Ratio
American Water Works	$14.31	$79.99	$1,144.70	$2,030.70	$98.00	34.97%
Aquarion Company	$18.26	$7.33	$133.90	$165.40	$0.00	44.73%
California Water Service Co.	$13.00	$12.62	$164.00	$151.70	$3.50	51.39%
Consumers Water Company	$12.11	$8.99	$108.90	$196.60	$1.10	35.52%
Philadelphia Suburban Corp.	$7.39	$27.50	$203.20	$249.60	$2.80	44.60%
United Water Resource	$11.53	$36.29	$418.50	$705.60	$95.60	34.31%
					Average	40.92%

Date Common Shares Outstanding was determined by Value Line

American Water Works	03/08/98
Consumers Water Company	03/11/98
Philadelphia Suburban Corp.	03/02/98
All Others	12/31/97

Source: Value Line Investment Survey, Edition 9 - May 8, 1998

12/31/97 Equity Ratios of Natural Gas Index Companies

	Book Value Per Share	Common Share Outstanding (millions)	Common Equity (millions)	Total Debt (millions)	Preferred Equity (millions)	Equity Ratio
Atlanta Gas & Light	$10.99	$56.46	$620.50	$810.50	$118.80	40.04%
Bay State Gas	$17.35	$13.52	$234.60	$329.00	$4.90	41.27%
KeySpan Energy Corp.	$19.09	$51.16	$976.60	$800.40	$0.00	54.96%
Indiana Energy	$12.96	$22.59	$292.80	$241.00	$0.00	54.85%
Laclede Gas	$14.26	$17.59	$250.90	$306.60	$2.00	44.84%
Northwest Natural Gas	$16.00	$22.78	$364.50	$401.30	$37.40	45.38%
Peoples Energy	$20.43	$35.23	$719.70	$587.50	$0.00	55.06%
Washington Gas & Light	$13.48	$43.64	$588.20	$574.20	$28.40	49.40%
					Average	48.22%

Date Common Shares Outstanding was determined by Value Line

Laclede Gas	02/11/98
Northwest Natural Gas	11/07/97
Peoples Energy	01/31/98
All Others	12/31/97

Source: Value Line Investment Survey, Edition 9 - May 8, 1998